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ABSTRACT

This study examined the effects of an acupressure intervention with two adolescents previously diagnosed with attention deficit hyperactivity disorder (ADHD). An inventory based on standard criteria for diagnosing ADHD was completed by each student, their parents, case workers, and teachers both before and after the intervention. The intervention consisted of 4 1-hour acupressure sessions given to each participant over 3 to 4 weeks. For the male participant, all raters concurred that average ADHD behavior was reduced with teachers' ratings showing the greatest behavioral change. However, for the female participant, the pretest inventory did not indicate ADHD behavior and other data were incomplete. Results suggest that acupressure may be an intervention that could be used to improve ADHD behaviors. (DB)

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The Effect of Acupressure for Moderating Behavior of Attention-Deficit/Hyperactivity Disorder Adolescents

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INTRODUCTION

Attention-Deficit/Hyperactivity Disorder (ADHD) has become the most prevalent childhood psychiatric disorder. Experts estimate that more than 2 million children or from 3-5% have the disorder (Hancock, 1996). ADHD is diagnosed by persistent patterns of impulsivity, hyperactivity and inattention as displayed over a six month period of time in at least two settings. As noted in the Diagnostic and Statistical Manual of Mental Disorders (APA, 1994) this behavior must be more severe and frequent than is typically observed in children at a comparable developmental level and must interfere with developmentally appropriate academic, social or occupational functioning. There are no lab tests that are diagnostic in a clinical assessment nor are there any specific physical features that manifest with ADHD. Recently studies of functional magnetic resonance imaging (fMRI) of the brain has led to a neurophysiological basis for visual perceptual processing deficits in dyslexia, a condition that many ADHD persons exhibit (Eden, VanMeter, Rumsey, Maisog, Woods & Zeffiro, 1996). The use of fMRI may eventually result in more accurate techniques for the diagnosis and characterization of developmental dyslexia, and perhaps for ADHD, although the cost of this technique would limit its usefulness as a diagnostic tool.

Many children diagnosed with ADHD are given either stimulants like Ritalin, Dexedrin, or Cyfert that increase the flow of dopamine in the brain or antidepressants such as Tofranil, Norpramin, or Elavil. The long-term effects of these drugs on children is not known. Daniel Safer of Johns Hopkins University School of Medicine calculated that 1.3 million children betwen the ages of 5 and 14 take Ritalin regularly (Hancock, 1996). Ritalin is classified by the U.S. Drug Enforcement Administration as a Schedule II controlled substance in the same category as methadone, methamphetamine and cocaine. Many doctors believe that Ritalin is overprescribed. Drugs often take the place of behavior-modification therapy and special help in school. Drug-induced production of dopamine does limit the body's normal production of dopamine and there are side effects to these drugs. Consequently, many are searching for alternative ways of behavior modification. Craniosacral work (Upledger, 1978), kinesthetic exercises

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designed to stimulate the neurological system such as "Brain Gym" (Dennison & Dennison, 1988, Hannaford, 1995), and acupressure/acupuncture may offer viable alternatives to prescription medications. In this particular study, the researchers sought to determine whether acupressure might be useful in improving ADHD behaviors as indicated by pre- and post-inventories.

ACUPRESSURE

Acupressure has been practiced as a healing art for three to five thousand years in China where it originated. Acupressure involves subtle energy manipulation through finger pressure on acupressure points. These are the same points used in acupuncture. There are approximately 360 acupressure points that lie along the meridians or channels of human energy. Some of these points lie underneath major muscle groups and are found within a muscular band, cord, or knot of tension; while others are located in indentations near bone structures. These points are especially sensitive to bioelectrical impulses. When stimulated with pressure or heat these points affect the endocrine system and trigger the release of endorphins, neurochemicals that relieve pain. Individual points are useful for a range of symptoms and conditions but are most effective when used in combination with other points.

The basic premise of acupressure is that the spirit, mind and body are completely interrelated, and affect one another and the overall health of a person. Acupressure helps the body work towards healing through a deep release of body-mind tensions. Acupressure, like acupuncture, is a complementary health practice based on the governing principles of yin and yang, life energy (chi), the five elements and the twelve major meridians or pathways of life energy. Since it involves touch, does not use needles or invasive procedures, and does not require undressing, it is often preferred over acupuncture. Acupressure also has the added advantage of effectively and continuously moving chi along the body by applying pressure to a series of points and is more process-oriented in its application.

THE STUDY

During May and June 1997, a research study was conducted by the authors with two high school students who had been previously diagnosed with Attention-Deficit/Hyperactivity Disorder and were not taking any medications. The students sttended City Lights School in Washington, D.C. and this is where the study was conducted. This high school is a private school that accepts adolescents, most of whom are severely emotionally disturbed, and who cannot succeed in the public school system. This study was reviewed and approved by the Towson University

Institutional Review Board for the Protection of Human Participants April 28, 1997. It was conducted with the help and collaboration of Ron Pettiway, the Executive Director of City Lights School, the staff of City Lights and the participants. Our thanks and appreciation are extended to Mr. Pettiway, the staff of City Lights and our two participants.

The study was also conducted with the assistance of Jane Kauffman, the School Program Coordinator for the Center for Mind-Body Medicine. This is a non-profit, educational organization dedicated to creating a compassionate and comprehensive approach to health care and medicine. It has developed a range of programs that provide education and training in the principles and practices of mind-body medicine for health and mental health professionals, educators, social service providers, people with chronic illness, and ordinary adults and adolescents wanting to better understand the interactions between mind and body and the ways in which emotional, mental, social and spiritual factors can directly affect health. Jane Kauffman designed and initiated a wellness program of mind-body education to improve the health and well-being of teachers, staff, students, and parents in Washington, D.C. schools. The School Wellness Program at City Lights School started in 1994 and helped to prepare the staff's, administrators' and students' acceptance of the use of acupressure and this research study. Our thanks and appreciation are extended to the Center for Mind-Body Medicine, its Director, James Gordon, M.D. and to Jane Kauffman.

METHODOLOGY

This study sought to determine whether there would be a change in behavior of the two participants as measured by scores on pre and post inventories that were completed by the participants and by their teachers, case workers and parents or guardians. The two students were selected by the staff from among several students who had been diagnosed as ADHD. There was one male 15 years old and one female 16 years old. The two students received a brief description of acupressure and then were asked by the researchers if they would like to participate. They both agreed and were given informed consent forms for them and their parents to complete. The inventory was then distributed to each student and their parents, case workers and teachers to complete. The inventory was developed by Lynn Johnson and based on the DSM IV criteria for diagnosing Attention-Deficity/Hyperactivity Disorder (ADHD). It was completed before and after the intervention. It consisted of 16 questions about behavior (4 hyperactivity questions, 5 impulsivity questions, and 7 lack of attention questions) and is attached.

The intervention between the pre- and post-assessments was four one hour acupressure sessions given by Lynn Johnson to each participant over a three to four week period of time. During the first sessions, medical histories were taken

and then acupressure was given to each participant for approximately 50 minutes. In the following three sessions, the participants each received 60 minutes of acupressure. The two participants generally received acupressure on the same day. Gentle music or natural sounds of birds and ocean played in the background during the sessions. The sessions were given at the school at the end of the school day, in the presence of Jane Kauffmann.

At the end of the four interventions, the students, parents, case workers and teachers were asked to complete the same inventory again. These pre and post inventories were then analyzed.

RESULTS

To examine the influence of acupressure treatments on the perceived behaviors of students diagnosed as ADHD, data potentially could be analyzed for two participants (1 female and 1 male), at two time points (pretest and post test), using 4 sources of information at each point (participant, teacher, caseworker, parent or guardian). Each inventory sheet had 16 questions which could indicate ADHD behavior, making it possible for each participant to be rated as "showing ADHD behavior" 62 ways before and 62 ways after treatment. Each question on the inventory could be answered on a 5-point scale (1= "never", 5= "all the time" after reversed items were transformed so that the high score meant "more ADHD-like behavior"). On any one inventory a participant might be rated between 16 ("not ADHD-like") and 80 points ("extremely ADHD-like"). We operationally defined a rating of "3" or more on a question as "showing ADHD behavior".

Data could therefore potentially be analyzed contrasting pretest and post test, contrasting raters, examining changes over time for a given rater, and examining variability among raters' responses to individual questions. The most salient of these contrasts and analyses are described below, by participant, as data permit.

Male Participant

The male participant had data complete enough to analyze. For the pretest inventory, 44 out of 62 questions indicated ADHD behavior. The teacher's ratings indicated the highest level of ADHD behavior with an average question rating of 4.12. The student indicated the lowest level, averaging 2.75. Parent and case worker gave moderate average ratings of 3.71 and 3.62, respectively. The ratings of parent, teacher, and caseworker were in moderate agreement about specific questions.

On the post test inventories 38 answers of the 62 indicated ADHD behavior. Of all the raters, the teacher's ratings were most changed from the pretest, now averaging 3.81. Other raters concurred that average ADHD behavior was

reduced, to 2.43 (student), 3.64 (parent), and 3.37 (case worker). The range of scores among the raters was smaller at the post test. The behavior changes were seen to occur in all three areas of hyperactivity, impulsivity, and lack of attention. Greatest improvements were in restless behavior, distraction by external stimuli, and engagement in physically dangerous activities.

The male participant was very willing to participate in the acupressure sessions and seemed to enjoy them. (In contrast, he was less than cooperative in many other activities in school). In one session he showed us a picture of himself as a baby. He reported that the sessions relaxed him and made him feel tired. After three of the sessions, he reported that he had a nap or slept very well that night. Although at the beginning of each session he had been exhibiting nervous, boisterous behavior, he fell asleep in three of the four sessions.

Female Participant

For the second participant, the pretest inventories did not indicate ADHD behavior. Therefore any behavioral improvement because of the intervention was questionnable and further analysis was not done on the inventory answers. This participant's data also was incomplete. The grandmother of the participant completed the pretest inventory, but since the participant moved to a foster home the second week of the study, the parental post test inventory was not completed.

CONCLUSIONS

For the male participant, all four respondents (the participant, teacher, case worker and parent) indicated by their answers on the pre and post inventories that there were positive behavioral changes, which we tentatively interpret as being due to the acupressure. These behavioral changes were in all three areas: hyperactivity, impulsivity and lack of attention. The greatest improvement (as seen by the case worker and teacher) were in his restless behavior, distraction by external stimuli and engagement in physically dangerous activities. The case worker mentioned after the last session that she had been able to successfully talk and work with the participant on his feelings for the first time, although she had known him for a year.

Attention should be paid to the stability of the participants' home life and to the possibility of intervening variables that would cause undue stress on the participants. One of the participants in this study had an alcoholic father, the other a foster mother and both came from very unstable home situations. The female participant also was the mother of an infant for whom she was the primary care-giver. The female participant and baby moved to a foster home during this four week study. Additionally, the female participant had several friends who were convicted and sent to jail in the third week of the study. Acupressure is able to

reduce the level of stress and tension and promote healing in the body, but this effect may be counterbalanced by life style and stress-evoking situations outside of the sessions.

The Hawthorne Attention Deficit Disorders Evaluation Scale (ADDES) (McCarney, 1995), school and home versions may be a preferred instrument for future studies, though it has the drawback of longer length. In the current study it was very difficult to get the participants, case workers, teachers and parents to complete the 16 question inventory that took about two minutes to complete. McCarney's inventory consists of 60 items on the school version and 45 on the home version and takes approximately 20 minutes to complete. It would be possible, however, to gather more extensive data for analysis by using this inventory.

From this single case study it appears that acupressure may be an intervention that could be used to improve ADHD behaviors. It is recommended that additional research be done with a larger population where parental cooperation can be assured and where there are more stable home situations.

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